

# Course Syllabus – Mechatronics/Robotics

## Assignment Code 21009

### Course Description

**Aim:** Mechatronics is the new industrial discipline for understanding how complex systems integrate various elements in the mechanical, fluid power, and controls domain, combined with the ability to work in a team environment with people of different areas of expertise.

**Grade Level:** 9-12 Grade  
**Prerequisites:** None

**Length:** Year Long Course  
87 min. period

#### Topics Covered:

- Fluid power
- Basic motor controls
- Robotics and automation
- Security
- Circuit design
- Mechanical systems
- Mechatronics
- Career Possibilities

### Instructional Philosophy and Delivery Plan

**Expectation:** Students will be expected to meet all the course goals by demonstrating their understanding of the basic concepts of each topic area. In order to pass the course students will need a minimum of 75%.

**Delivery Method:** Instruction will consist of lecture, real world work environments, individual activities and projects, group work, discussion, and reading.

**Community Involvement:** Guest speakers from local industries will be brought in throughout the course. Learning trips will be taken for various units in the course.

**Assessment:** Students will be graded on the following items: written assessments, practical skill demonstrations/assessments, daily appraisal of work related soft skills, and individual projects.

### Course Standards

RBTMT1.1. Demonstrate knowledge of equipment used in topic area(s)  
RBTMT1.2. Examine the systems relationships  
RBTMT2.1. Demonstrate proper safety procedures  
RBTMT2.2. Determine how to apply Lockout-Tag-out procedure  
RBTMT 2.3. Classify Materials Safety Data Sheet (MSDS)  
RBTMT 3.1. Build circuit according to schematic diagram  
RBTMT3.2. Calculate circuit parameters  
RBTMT3.3. Measure circuits parameters

RBTMT3.4. Compare calculated and measured solutions to analyze circuit operation  
RBTMT3.5. Examine proper terminology and career possibilities

## Major Course Projects

- Identify and Demonstrate working knowledge of equipment in topic area
- Report on subsystems and explain their purpose
- Develop safety policies and procedures for the manufacturing area
- Build a circuit according to schematic diagram
- Explore and report on career possibilities

## Assessment Plan & Grading Scale

Grade Scale		Description of Work
A	93-100%	Consistently demonstrates an exceptional level of quality and effort. Having all work in on time and completed to exceed expectations. Mastery in evaluating, synthesizing, and applying the knowledge.
B	85-92%	Consistently demonstrates proficient knowledge with a good effort and quality of work. All assignments are complete and on time. Demonstrates the ability to evaluate, analyze, synthesize and apply the principles.
C	70-84%	Demonstrates proficient knowledge and the ability to apply knowledge. Work shows average effort. A few assignments may be missed or late.
D	62-70%	Work shows minimal effort and some assignments are late. Demonstrates a basic understanding of recalling or comprehending knowledge
F	Below 62%	Understanding is below basic. Work is of poor quality and does not meet standards or expectations.